VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a minor, municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards 9 VAC 25-260-10 et.seq. The discharge is a result of the operation of a municipal wastewater treatment plant treating sewage originating from an elementary school with a population of approximately 500 students and staff. This permit action includes revised effluent limitations and special conditions in the permit.

1. Facility Name and Location Address: Washington District Elementary School Wastewater Treatment Plant (WWTP)
454 Oak Grove Road
Oak Grove, VA 22443

Facility Contact: Elaine Fogliani
Superintendant of Schools
(804) 493-8018

2. SIC Code: 4952

3. Permit No. VA0082058 Permit Expiration Date: March 29, 2010

4. Owner Contact: Westmoreland County School Board
Name: Elaine Fogliani
Title: Superintendent of Schools
Telephone No.: (804) 493-8018
Address: 141 Opal Lane, Montross VA 22520

5. Application Complete Date: Date: December 4, 2009
Permit Drafted By: Jeremy Kazio Date: March 15, 2010

DEQ Regional Office: Piedmont Regional Office

Reviewed By: Virginia E. Kelly Date: March 29, 2010
Curt Linderman Date: June 22, 2010

6. Receiving Stream:

Name:	UT Mattox Creek
River Mile:	1AXFF001.63
Basin:	Potomac River
Subbasin:	Potomac River
Section:	1a
Class:	III
Special Standards:	None
1Q30 =	0.07 cfs (0.04 MGD)
1Q10 =	0.20 cfs (0.13 MGD)
7Q10 =	0.28 cfs (0.18 MGD)
30Q10 =	0.70 cfs (0.45 MGD)
30Q5 =	1.3 cfs (0.82 MGD)
High Flow 1Q10 =	4.0 cfs (2.6 MGD)
High Flow 7Q10 =	4.4 cfs (2.8 MGD)
High Flow 30Q10 =	7.2 cfs (4.7 MGD)
Harmonic Mean =	Not determined
Tidal?	No
On 303(d) list?	Yes

7. Operator License Requirements: Class III
The recommended attendance hours by a licensed operator and the minimum daily hours that the treatment works should be manned by operating staff are contained in the Sewage Collections and Treatment Regulations (SCAT) 9 VAC 25-790-300. A class III licensed operator is required for this facility.

8. Reliability Class: Class I
Reliability is a measurement of the ability of a component or system to perform its designated function without failure or interruption of service. The reliability classification is based on the water quality and public health consequences of a component or system failure. The permittee is required to maintain Class I Reliability for this facility.

9. Permit Characterization:

( ) Issuance	(X) Existing Discharge
(X) Reissuance	( ) Proposed Discharge
( ) Revoke & Reissue	(X) Effluent Limited
( ) Owner Modification	(X) Water Quality Limited
( ) Board Modification	( ) WET Limit
( ) Change of Ownership/Name	( ) Interim Limits in Permit
Effective Date:	( ) Interim Limits in Other Document (attached)
(X) Municipal	( ) Compliance Schedule Required
SIC Code(s): 4952	( ) Site Specific WQ Criteria
( ) Industrial	( ) Variance to WQ Standards
SIC Code(s):	( ) Water Effects Ratio
(X) POTW	(X) Discharge to 303(d) Listed Segment
( ) PVOTW	( ) Toxics Management Program Required
( ) Private	( ) Toxics Reduction Evaluation
( ) Federal	( ) Possible Interstate Effect
( ) State	( ) Storm Water Management Plan

10. Wastewater Flow and Treatment:

Table 1

Outfall Number	Wastewater Source	Treatment	Flow
001	Domestic wastewater originating from the operation of an elementary school with a population of approximately 500 students, faculty, and employees.	Bar screen, aerated equalization basin, dual aeration basins in series, clarifier w/polymer addition, filter dose tank, dual sandfilters in parallel, clearwell, tablet chlorinator, chlorine contact tank, dechlorination, and post aeration. Sludge is held in an aerated holding basin.	6,000 gpd (0.0060 MGD) design capacity

Please see **Attachment A** for facility flow diagram.

11. Sludge Disposal: Waste sludge is held in an aerated holding basin and disposed of by Berry Septic, as needed. The sludge will be taken by the licensed contract hauler to the Little Falls Run WWTP (VA0076392) near Ramoth, VA via US Routes 3 and 1.

12. Discharge Location Description: This facility discharges to an unnamed tributary of Mattox Creek.
Name of USGS topo map: Rollins Fork - 168A (See **Attachment B**)

13. Material Storage: Chemicals used for the wastewater plant are stored in proper containers and under roof cover.

14. Ambient Water Quality Information:
Hardness data from station 1AMAO007.46 and temperature and pH data from station 1AXFF001.61 were used in the 2010 reissuance for limitation evaluations for Ammonia and Total Residual Chlorine. Monitoring station 1AMAO007.46 is located on the nontidal portion of Mattox Creek at the Route 627 bridge. Monitoring station 1AXFF001.61 is located on the receiving stream directly below the outfall at the Route 3 bridge. (See **Attachment C**) During previous permit reissuances, the permittee provided inaccurate coordinates in Application 2A for the location of Outfall 001. As a result, DEQ has historically permitted the facility under the assumption that the effluent flow was to an intermittent receiving stream located northeast of the actual discharge. For the 2010 permit reissuance, the correct coordinates were provided by the permittee, and the receiving stream information has been revised and utilized accordingly. Please see the **Attachment C** for the most recent Stream Sanitation Analysis dated May 7, 2010 by Jennifer V. Palmore, P.G..

15. Antidegradation Review and Comments:
The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect those uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. The receiving stream should be considered a Tier 1 water due to the existence of the discharge, which has been previously permitted at Tier 1 levels.

16. Site Inspection: By Michael Dare on May 2, 2007. (See **Attachment D**)

17. Effluent Limitation Development:

Table 2 – Limitations Basis

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITS				MONITORING REQUIREMENTS	
		MO AVG	WE AVG	MIN	MAX	FREQ	SAMP TYPE
Flow (MGD)	NA	NL – monitoring only	NA	NA	NL	1/Day	Estimate
pH	1, 4	NA	NA	6.0 su	9.0 su	1/Day	Grab
$cBOD_5$	2	10 mg/L (230 g/d)	15 mg/L (340 g/d)	NA	NA	1/Month	Grab
Total Suspended Solids (TSS)	2	10 mg/L (230 g/d)	15 mg/L (340 g/d)	NA	NA	1/Month	Grab
Fecal Coliform	2	200 N / 100 mL (Geometric Mean)	NA	NA	NL	4/Month (between 10am and 4pm)	Grab
Enterococci	3	35 N / 100 mL (Geometric Mean)	NA	NA	NL	4/Month (between 10am and 4pm)	Grab
E.Coli	1,3	126 N / 100 mL (Geometric Mean)	NA	NA	NL	4/Month (between 10am and 4pm)	Grab
Total Kjeldahl Niitrogen (TKN)	2	3.0 mg/L (68 g/d)	4.5 mg/L (100 g/d)	NA	NA	1 / Month	Grab
Total Residual Chlorine (TRC)	1	0.0094 mg/L	0.012 mg/L	NA	NA	1/Day	Grab
Dissolved Oxygen (DO)	2	NA	NA	6.9 mg/L	NA	1/Day	Grab

1.	Water Quality Standards	2.	Best Professional Judgment (BPJ)
3.	Total Maximum Daily Load (TMDL)	4.	Federal Effluent Guidelines

- **Total Residual Chlorine and Ammonia (Additional Information):**

  A limitation evaluation begins by determining chronic and acute wasteload allocations (WLA's) using the MSTRANTI Excel spreadsheet. MSTRANTI produces WLA's with calculations based on the Virginia Water Quality Standards (9 VAC 25-260 et. seq.) using data inputs for both effluent and receiving stream qualities and flows. Once determined, the chronic and acute WLA's are entered into the STATS 2.0.4 computer application along with the appropriate quantification level (QL) and at least one data point for each parameter. The output from the STATS 2.0.4 application will indicate the need for a permit limitation and calculate that limitation if needed. For Total Residual Chlorine and Ammonia, GM 00-2011 requires that a concentration of 20 mg/L and 9 mg/L, respectively, be entered into STATS 2.0.4 as a data point in order to force the program to produce a limit if the WLA's are low enough that one is needed.

  Evaluations were conducted for Ammonia and Total Residual Chlorine as explained above for the 2010 permit reissuance. Results indicated that no limitation is required for Ammonia, but that a limitation for TRC is required. However, the calculated TRC limitation is greater than the existing TRC limit and therefore antibacksliding policies prevent the new limitation from replacing the existing one. The Total Residual Chlorine limitation will be carried forward from the 2005 permit reissuance. See **Attachment E**

- **Limitation Rationale for $cBOD_5$, TSS, DO, TKN, and Bacteria (Additional Information)**

  $cBOD_5$, TSS, and TKN: The 2005 permit reissuance included limitations for these parameters which were based on Best Professional Judgment and outlined in a memorandum by A.J. Anthony dated March 9, 1987 (**Attachment C**). It is believed that these limitations represent "self sustaining" concentrations for these pollutants such that the "effluent will not normally violate the stream standard even if the stream consists of 100% effluent." For the 2010 permit reissuance, it is believed that these standards are appropriate and will maintain the water quality of the receiving stream.

  DO: The applicable Dissolved Oxygen (DO) criteria contained in 9 VAC 25- 260-40 (2010 Water Quality Standards) for waters in the Coastal and Piedmont geographic zones are 4.0 mg/L minimum and 5.0 mg/L daily average. The DO limitation, based on Best Professional Judgment, contained in the 2005 permit reissuance (6.9 mg/L) cannot be relaxed due to antibacksliding policies. Therefore, this limitation has been carried forward to the 2010 permit reissuance and will adequately protect the minimum criteria contained in the 2010 Water Quality Standards.

  E.coli and Enterococci: Limitations for these bacteria are being included in the 2010 permit reissuance due to a bacterial Total Maximum Daily Load (TMDL) that applies to Mattox Creek and addresses impairments of both the shellfish and primary contact recreation uses (see Item 26 of this fact sheet). The TMDL allocates 1.05E+10 CFU/year for E.coli bacteria and 2.90E+09 CFU/year for Enterococci to this facility at a design flow of 6000 gallons per day. These loads have been applied as concentrations in this permit via the following equations:

  E.coli:

  (1.05E+10 CFU/year / 365 days) / (6000 gpd * 3.785411 gal/L * 1000 mL/L / 100 mL) = 126 CFU/100 mL

  Enterococci:

  (2.90E+9E+10 CFU/year / 365 days) / (6000 gpd * 3.785411 gal/L * 1000 mL/L / 100 mL) = 35 CFU/100 mL

  The limitations for E.coli and Enterococci contained in the 2010 permit reissuance, therefore, ensure compliance with the TMDL allocations.

  The limitation for E.coli is also expected to protect the primary contact recreation use bacteria criteria outlined in 9 VAC 25-260-170 (Water Quality Standards).The primary contact recreation bacterial

criteria for protection of freshwater is 126N/100 mL colony forming units (CFU) of E.coli bacteria based on a monthly geometric mean resulting from at least 4 weekly samples.

Fecal Coliform: Although this facility does not discharge to a water body assigned special standard "*a,*" previous permit reissuances have included a limit for fecal coliform due to the presence of shellfish beds downstream of the discharge within the tidal portions of Mattox Creek. For sewage discharges that may reach shellfish waters, permits limit fecal coliform with an effluent limit of 200 colony forming units per 100 milliliters, applied as a monthly geometric mean. Although the Water Quality Standards have been amended to remove the reference to this effluent limit in shellfish waters, the Virginia Department of Health, Bureau of Shellfish Sanitation still uses fecal coliform as an indicator for determining the quality of shellfish waters, and it is necessary to ensure discharges meet this level. Since it has historically maintained the in-stream water quality criteria for fecal coliform of 14/43 per 100 milliliters, the 200 per 100 milliliters effluent limit will be used in shellfish waters in order to continue meeting the in-stream criteria and for protection of shellfish under the general standard.

18. Basis for Sludge Use & Disposal Requirements: Not applicable, as this facility does not land apply sludge.

19. Antibacksliding: All limitations in the proposed 2010 permit reissuance are the same or more stringent than the limitations in the 2005 permit issuance.

20. Compliance Schedules – Not applicable. The only new or more stringent limitations for the proposed 2010 permit reissuance are for E.Coli and Enterococci. Compliance schedules are not granted for bacterial limitations. (Permit Manual, rev. January 27, 2010, Section MN-3, Pg.37).

21. Special Conditions:

Part I.B. - Additional Chlorine Limitations and Monitoring Requirements
Rationale: Required by Sewage Collection and Treatment Regulations, 9VAC25-790 and Virginia Water Quality Standards 9VAC 25-260-170, Bacteria; other recreational waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

Part I.C.

a. Special Condition C.1 – 95% Capacity Reopener
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 4 for all POTW and PVOTW permits.

b. Special Condition C.2 – O&M Manual Requirement
Rationale: Required by Code of Virginia§62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190 E.

c. Special Condition C.3 – Licensed Operator Requirement
Rationale: The VPDES Permit Regulation, 9 VAC 25-31-200 C and the Code of Virginia § 54.1-2300 et seq., Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.), require licensure of operators.

d. Special Condition C.4. – Reliability Class
Rationale: Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal facilities.

e. Special Condition C.5 – Sludge Use and Disposal
Rationale: VPDES Permit Regulation, 9 VAC 25-31-100 P; 220 B 2; and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal.

f. Special Condition C.6. – Sludge Reopener
Rationale: Required by VPDES Permit Regulation 9 VAC 25-31-220 C for all permits issued to treatment works treating domestic sewage.

g. Special Condition C.7 – Compliance Reporting
Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limitation or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

h. Special Condition C.8 – Materials Handling/Storage
Rationale: 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

i. Special Condition C.9 – TMDL Reopener
Rationale: Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

j. Special Condition C.10—Indirect Dischargers
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 B.1.& B.2. for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

k. Special Condition C.11 – CTO, CTC Requirement
Rationale: Required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790-50.

l. Special Condition C.12 – Nutrient Reopener
Rationale: 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

n. Special Condition C.13 - Treatment Works Closure Plan
Rationale: §62.1-44.19 of the State Water Control Law. This condition establishes the requirement to submit a closure plan for the wastewater treatment facility if the treatment facility is being replaced or is expected to close.

m. Special Condition C.14 – Tie into Central Sewage Treatment Facility
Rationale: The requirement to hook up to central sewer should one become available was specified as a condition of the original permit issuance by the State Water Control Board at a socio-economic hearing held on December 11, 1989.

22. Part II, Conditions Applicable to All VPDES Permits
The VPDES Permit Regulation at 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

23. Changes to 2005 Permit

Table 3: Permit Processing Change Sheet

Parameter Changed		Effluent Limits Changed		Monitoring Requirement Changed		Reason for Change	Date
		From	To	From	To		
TKN	Monthly Average	3.0 mg/L	No Change	1/Month	No Change	Loading limitations are expressed as whole numbers in 2 significant figures in accordance with GM06-2016.	3/10
		0.068 kg/d	68 g/d				
	Weekly Average	4.5 mg/L	No Change				
		0.10 kg/d	100 g/d				
TSS	Monthly Average	10 mg/L	No Change	1/Month	No Change		
		0.23 kg/d	230 g/d				
	Weekly Average	15 mg/L	No Change				
		0.34 kg/d	340 g/d				
$cBOD_5$	Monthly Average	10 mg/L	No Change	1/Month	No Change		
		0.23 kg/d	230 g/d				
	Weekly Average	15 mg/L	No Change				
		0.34 kg/d	340 g/d				
Enterococci		--	35 N/100 mL (Geometric Mean)	--	4/Month (between 10 am and 4 pm)	This limitation is being included in the 2010 permit reissuance due to the aforementioned TMDL. The TMDL allocates 2.9E+09 CFU/year to this facility at 6000 gallons per day. This total count is calculated using a monthly geometric mean concentration of 35N/100mL. The limitation of 35N/100mL therefore insures compliance with the TMDL allocation.	
Fecal Coliform		200 N/100 mL (Geometric Mean)	No Change	1/Month (between 10 am and 4 pm)	4/Month (between 10 am and 4 pm)	Monitoring frequency changed in accordance with current agency guidance (Permit Manual, Section MN-3, Pg. 37-38, rev. January 27, 2010).	
E.Coli		--	126N/100 mL (Geometric Mean)	--	4/Month (between 10 am and 4 pm)	This limitation is being included in the 2010 permit reissuance due to the aforementioned TMDL. The TMDL allocates 1.05E+10 CFU/year to this facility at 6000 gallons per day. This total count is calculated using a monthly geometric mean concentration of 126N/100mL. The limitation of 126N/100mL therefore insures compliance with the TMDL allocation.	

Table 3: Permit Processing Change Sheet (continued): Special Conditions

From	To	Special Condition Changed	Reason for Change	Date
Part I.A.1.a	Part I.A.1(a)	Design Flow	Wording changed for acuity purposes.	3/10
--	Part I.A.1(b)	Significant figures	New, reflects changes made in agency procedure due to GM06-2016	
Part I.A.1.b	Part I.A.1(c)	Additional TRC Limitations Notation	Wording changed for acuity purposes.	
--	Part I.A.1(d)	Bacterial Monitoring Criteria	New, regional addition in order to enhance monitoring frequency criteria description for bacteria defined in the current Permit Manual (rev.January 27, 2010).	
Part I.A.2	Part I.A.2	Discharge of floating solids/foam	No changes	
--	Part I.A.3	Sample location	New, reflects guidance contained in current Permit Manual (rev. January 27, 2010)	
Part I.B	Part I.B	Additional TRC Limitations and Monitoring Requirements	Wording changed for acuity purposes in accordance with current Permit Manual. New bacterial monitoring frequencies for alternative disinfection methods added as a result of TMDL (Enterococci) and current Permit Manual (Fecal Coliform)	
Part I.C.1	Part I.C.1	95% Capacity Notification	DEQ-PRO address has been removed	
Part I.C.4	Part I.C.2	O & M Manual	Revised to reflect current Permit Manual (rev. January 27, 2010)	
Part I.C.5	Part I.C.3	Licensed Operator	No changes	
Part I.C.6	Part I.C.4	Reliability Class	No changes	
Part I.C.10	Part I.C.5	Sludge Use and Disposal	Revised wording to reflect current Permit Manual (rev. January 27, 2010)	
Part I.C.7	Part I.C.6	Sludge Reopener	No changes	
Part I.C.9	Part I.C.7	Compliance Reporting	Revised to reflect current Permit Manual (rev. January 27, 2010). Language further revised according to regional procedure and for clarity purposes.	
Part I.C.11	Part I.C.8	Materials Handling/Storage	No changes	
Part I.C.8	Part I.C.9	TMDL Reopener	No changes	
Part I.C.2	Part I.C.10	Indirect Dischargers	No changes	
Part I.C.3	Part I.C.11	CTC, CTO Requirement	Revised wording to reflect current Permit Manual (rev. January 27, 2010)	
--	Part I.C.12	Nutrient Reopener	Changed to reflect current agency nutrient guidance (GM07-2008)	
--	Part I.C.13	Treatment Works Closure Plan	New, reflects SCAT regulations requirements (9 VAC 25-790-120 E.)	
Part I.C.13	Part I.C.14	Tie into Central Sewage Treatment Facility	Ending phrase " . . . in the future" deleted for streamlining purposes.	
Part I.A.3	Removed	Compliance Reporting Notation	No longer required.	
Part I.C.12	Removed	Intermittent Discharger	Not required for the 2010 permit reissuance. Reasonable potential analysis resulted in the conclusion that permit limitations are not required for chronic or acute toxic parameters. The toxic limitations contained in this permit are based on antibacksliding policies. Therefore, the requirement that the permittee discharge on an intermittent basis does not apply.	
The structure and language of the cover page have been slightly modified in accordance with new agency procedures and for streamlining purposes. Signatory requirements have also changed due to regional administrative changes.				

24. Variances/Alternate Limits or Conditions: None.

25. Public Notice Information required by 9 VAC 25-31-280 B:

Comment period: Start Date: TBD End Date: TBD
Published Dates: TBD Newspaper: *Westmoreland News*

All pertinent information is on file and may be inspected or copied by contacting Jeremy Kazio at:

Virginia Department of Environmental Quality (DEQ)
Piedmont Regional Office
4949-A Cox Road
Glen Allen, Virginia 23060-6296

Telephone Number 804/527-5044
Facsimile Number 804/527-5106
Email Jeremy.Kazio@deq.virginia.gov

DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment or may request copies of the documents from the contact person listed above.

26. Total Maximum Daily Load (TMDL): A TMDL has been completed for Mattox Creek due to a previous Recreation Use impairment as well as two downstream tidal impairments. EPA approved the “Fecal Bacteria Total Maximum Daily Load Development for Mattox Creek, Primary Contact Recreational Use and Shellfish Harvesting Use” TMDL on December 4, 2006 for this segment. This TMDL is being modified concurrently with the 2010 permit reissuance due to the discovery of inaccurate facility flows being used to calculate bacterial WLA’s for the two facilities which discharge to this segment (Washington District Elementary School-VA0082058 and Outdoor World Harborview-VA0089087). The modified TMDL contains WLA’s for this discharge of 1.05E+10 CFU/year for E.coli bacteria and 2.90E+09 CFU/year for Enterococci bacteria . This permit has limits of 126N/100mL for E.coli and 35N/100mL for Enterococci that are in compliance with the TMDL.

During the 2008 305(b)/303(d) Water Quality Integrated Assessment, the nontidal portion of Mattox Creek and its tributaries were assessed as not supporting of the Aquatic Life Use due to dissolved oxygen and pH violations. Natural conditions are suspected; therefore the streams are considered Category 5C (The Water Quality Standard is not attained due to "suspected" natural conditions. The water is impaired for one or more designated uses by a pollutant(s) and may require a TMDL (303d list). WQ Standards for these waters may be re-evaluated due to the presence of natural conditions.). The segment fully supports the Recreation and Wildlife Uses and was not assessed for the Fish Consumption Use. The Washington District Elementary School WWTP discharge is required to meet or exceed the pH and DO water quality criterion for Class III waters as set forth in the 2010 Water Quality Standards. Therefore, this facility is not expected to cause or contribute to the possible pH and DO impairments in the nontidal portions of Mattox Creek.

27. Additional Comments:

a. Previous Board Action:

A socio-economic hearing regarding the original 1989 permit issuance was held on December 11, 1989 because the VDH, DSS and the VMRC indicated that a shellfish condemnation (prohibited area) in the vicinity of this discharge would be necessary. The permit was granted by the State Water Control Board because all other options for waste disposal were examined and deemed technically infeasible or unapprovable by the VDH. However, the Board required, as a

condition of the permit issuance, that a special condition be included in the permit which would require that the facility tie in to a central sewage treatment facility should one become available.

A Consent Order was executed on January 22, 1999 which required that the permittee submit an approvable corrective action plan and schedule to address the school's inability to meet their permitted effluent limits as required by the VPDES permit issued in 1994. The plan and schedule specified a plan of action with milestones and deadlines which the school had to take to minimize future violations from occurring. The order also required retaining the services of a professional wastewater operations firm to provide plant oversight. Quarterly progress reports were required to be submitted to DEQ reporting their progress with the plan and schedule. The consent order also required operator training and the submittal of an updated O & M Manual for approval. The facility had completed all of the conditions of the Order by June 1999, however it was noted that the facility was not in compliance with its permit so the School Board's consultant and DEQ Enforcement agreed to monitor compliance with permit limits and the Order was kept open. The facility worked on correcting its problems, achieved compliance, and the Order was closed on June 29, 2004.

b. Staff Comments:

- A monitoring frequency reduction was not considered for this facility due to the intermittent nature of its discharge. Although the intermittent discharger special condition that required the permittee to discharge for no more than 3 consecutive days at a time has been removed for the 2010 permit reissuance, the nature of the permittee's business (a school) results in an intermittent discharge of treated sewage effluent. According to the current agency guidance (Permit Manual, Section MN-2, Pg.4, rev. 1/27/2010), a monitoring reduction analysis cannot be properly conducted for intermittent discharges due to lack of continuous data.

- Financial assurance does not apply to this facility because it is publicly owned.

- Washington District Elementary School WWTP is an existing discharger with a design capacity of 6,000 gallons per day, and was issued a CTC before July 1, 2005. This facility is not considered a significant discharger under the Code of Virginia § 62.1-44.19:14.C.5 for new or expanded dischargers, and consequently is not subject to coverage under the *General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9 VAC 25-820)*.

- Coordination with the Virginia Department of Health –Division of Shellfish Sanitation indicated that the existing discharge would not cause any change to the existing shellfish closures within this facility's receiving water body.

- The permit expired prior to reissuance due to a modification to the receiving stream's TMDL.

c. Public Comment: TBD

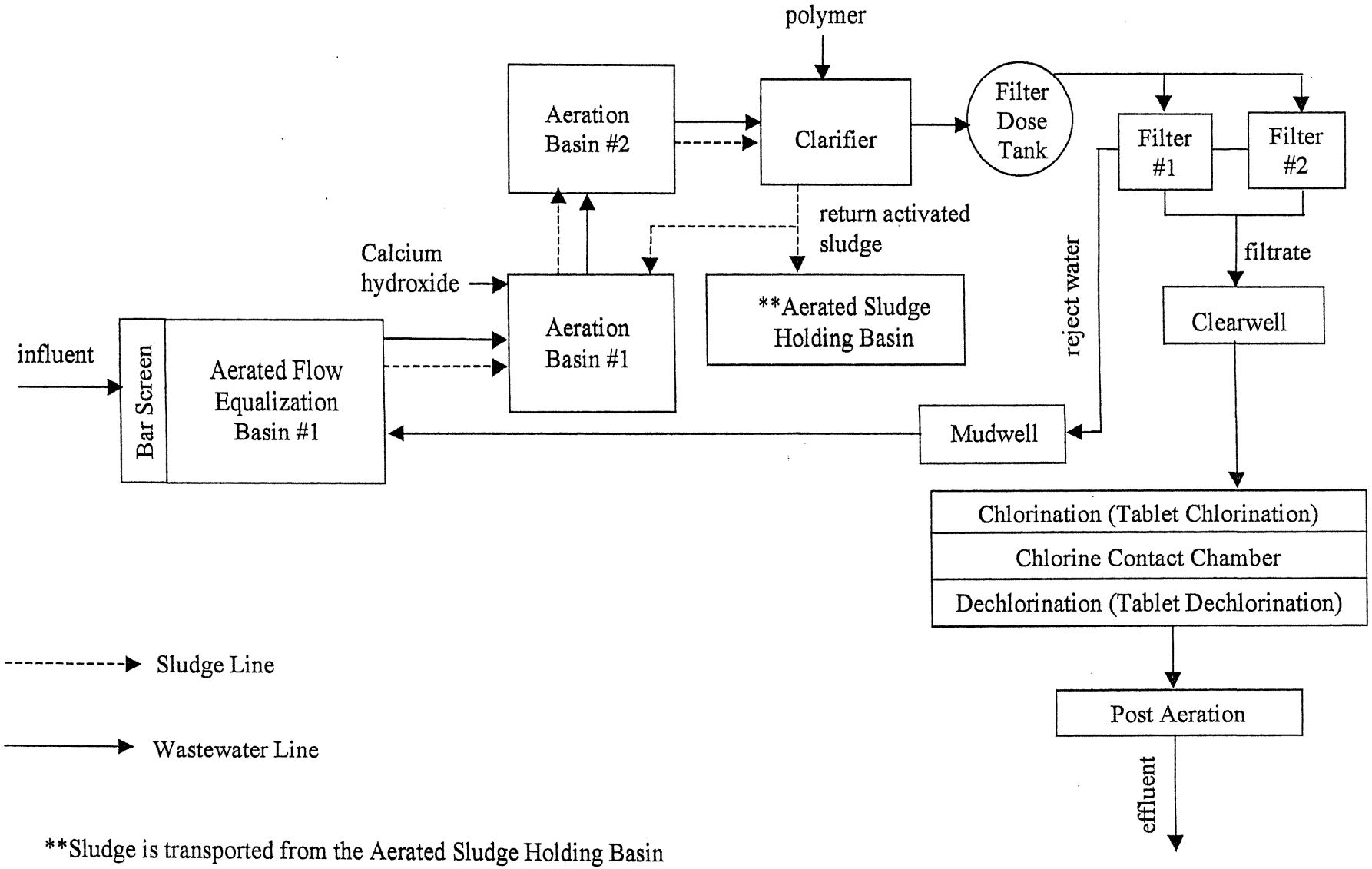
28. Summary of attachments to this Fact Sheet:

Attachment A	Flow Diagram
Attachment B	Location Map
Attachment C	Flow Frequency Analysis, Stream Sanitation Memo, Swamp Limits Memorandum, Ambient Stream Data
Attachment D	Site Inspection Report
Attachment E	Effluent Data and Limitation Evaluations

Attachment A

Flow Diagram

Flow Diagram of Washington District Elementary School WWTP

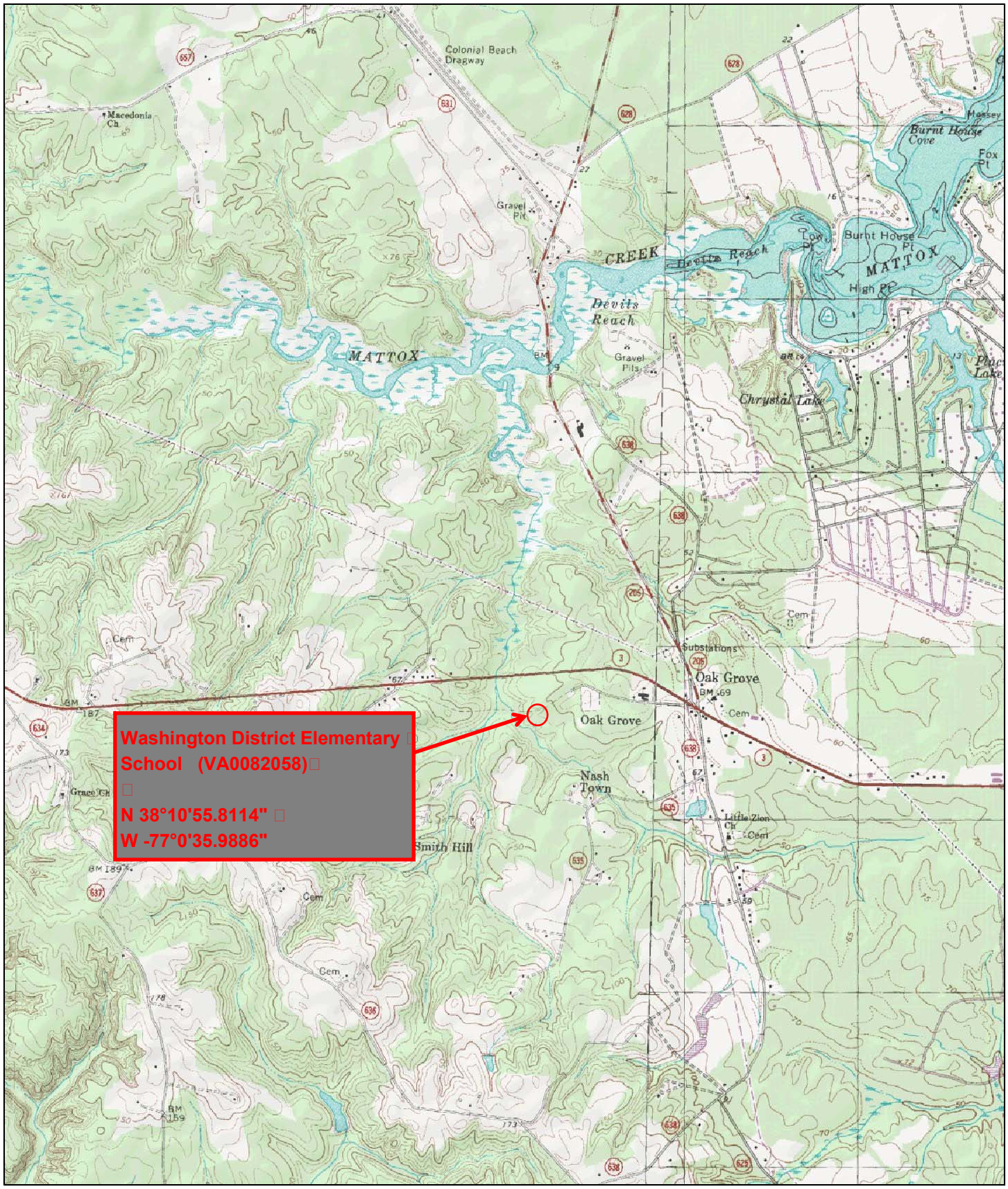


Sludge is transported from the Aerated Sludge Holding Basin to the Little Falls Run Wastewater Treatment Plant.

Figure 2

Attachment B

Location Map



0 0.75 Mi
0 4000 Ft

Map provided by MyTopo.com


3
38 10 55.8114 -77 0 35.9886
© 2009 Google
Image © 2009 Commonwealth of Virginia
© 2009 Europa Technologies
153 ft
38°10'56.55" N 77°00'34.89" W
Feb 1, 2007
Eye alt 531 ft
Google

Attachment C

Flow Frequency Analysis, Stream Sanitation Memo, Swamp Limits Memorandum, Ambient Stream Data

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Piedmont Regional Office
4949-A Cox Road Glen Allen, Virginia 23060

SUBJECT: Flow Frequency Determination / 303(d) Information
Washington District Elementary School – VA0082058

TO: Jeremy Kazio

FROM: Jennifer Palmore, P.G.

DATE: January 7, 2010

COPIES: File

The Washington District Elementary School discharges to an unnamed tributary of Mattox Creek near Oak Grove, VA. The discharge is located at rivermile 1AXFF001.63. Flow frequencies have been requested at this site for use in developing effluent limitations for the VPDES permit.

The VDEQ conducted several flow measurements in the watershed on Fox Hall Swamp near Potomac Mills, VA (#01660870) from 1980 through 1991. The measurements were correlated with the same day daily mean values from the continuous record gage on Bush Mill Stream near Heathsville, VA (#01661800). The measurements and daily mean values were plotted on a logarithmic graph and a best-fit power trend line was drawn through the data points. The regression trend line equation was used to calculate the Fox Hall Swamp flow frequencies from the reference gage flow frequencies. The flows for the receiving stream were then calculated using drainage area proportion. The data for the reference gage, the measurement site, and the discharge are presented below and the regression analysis is attached.

Bush Mill Stream near Heathsville, VA (#01661800):

Drainage area: 6.82 mi^2
Statistical period: 1963-1987
High flow months: January - May

1Q30 = 0.01 cfs	High Flow 1Q10 = 1.5 cfs
1Q10 = 0.04 cfs	High Flow 7Q10 = 1.7 cfs
7Q10 = 0.06 cfs	High Flow 30Q10 = 3.1 cfs
30Q10 = 0.18 cfs	HM = Not determined
30Q5 = 0.37 cfs	

Fox Hall Swamp near Potomac Mills, VA (#01660870):

Drainage Area = 2.29 mi^2

1Q30 = 0.05 cfs	High Flow 1Q10 = 3.0 cfs
1Q10 = 0.15 cfs	High Flow 7Q10 = 3.3 cfs
7Q10 = 0.21 cfs	High Flow 30Q10 = 5.4 cfs
30Q10 = 0.52 cfs	HM = Not determined
30Q5 = 0.94 cfs	

Mattox Creek UT at discharge point:

Drainage area = 3.06 mi^2

1Q30 = 0.07 cfs (0.04 MGD)	High Flow 1Q10 = 4.0 cfs (2.6 MGD)
1Q10 = 0.20 cfs (0.13 MGD)	High Flow 7Q10 = 4.4 cfs (2.8 MGD)
7Q10 = 0.28 cfs (0.18 MGD)	High Flow 30Q10 = 7.2 cfs (4.7 MGD)
30Q10 = 0.70 cfs (0.45 MGD)	HM = Not determined
30Q5 = 1.3 cfs (0.82 MGD)	

This analysis does not address any withdrawals, discharges, or springs on the receiving stream.

During the 2008 305(b)/303(d) Water Quality Integrated Assessment, the nontidal portion of Mattox Creek and its tributaries were assessed as not supporting of the Aquatic Life Use due to dissolved oxygen and pH violations. Natural conditions are suspected; therefore the streams are considered Category 5C (The Water Quality Standard is not attained due to "suspected" natural conditions. The water is impaired for one or more designated uses by a pollutant(s) and may require a TMDL (303d list). WQ Standards for these waters may be re-evaluated due to the presence of natural conditions.). The fact sheets are attached. The segment fully supports the Recreation and Wildlife Uses and was not assessed for the Fish Consumption Use.

A TMDL has been completed for Mattox Creek due to a previous Recreation Use impairment as well as two tidal bacterial impairments. The “Fecal Bacteria Total Maximum Daily Load Development for Mattox Creek – Primary Contact Recreational Use and Shellfish Harvesting Use” was adopted by the EPA on 12/4/2006 and by the SWCB on 7/31/2008. The nontidal Mattox segment received a wasteload allocation of 2.12E+06 E. coli cfu/year. However, based on the current design flow of 0.006 MGD and a 126 N/100 mL permit limit, the facility could discharge up to 1.05E+10 cfu/year; therefore the TMDL will need to be modified before the permit can be reissued.

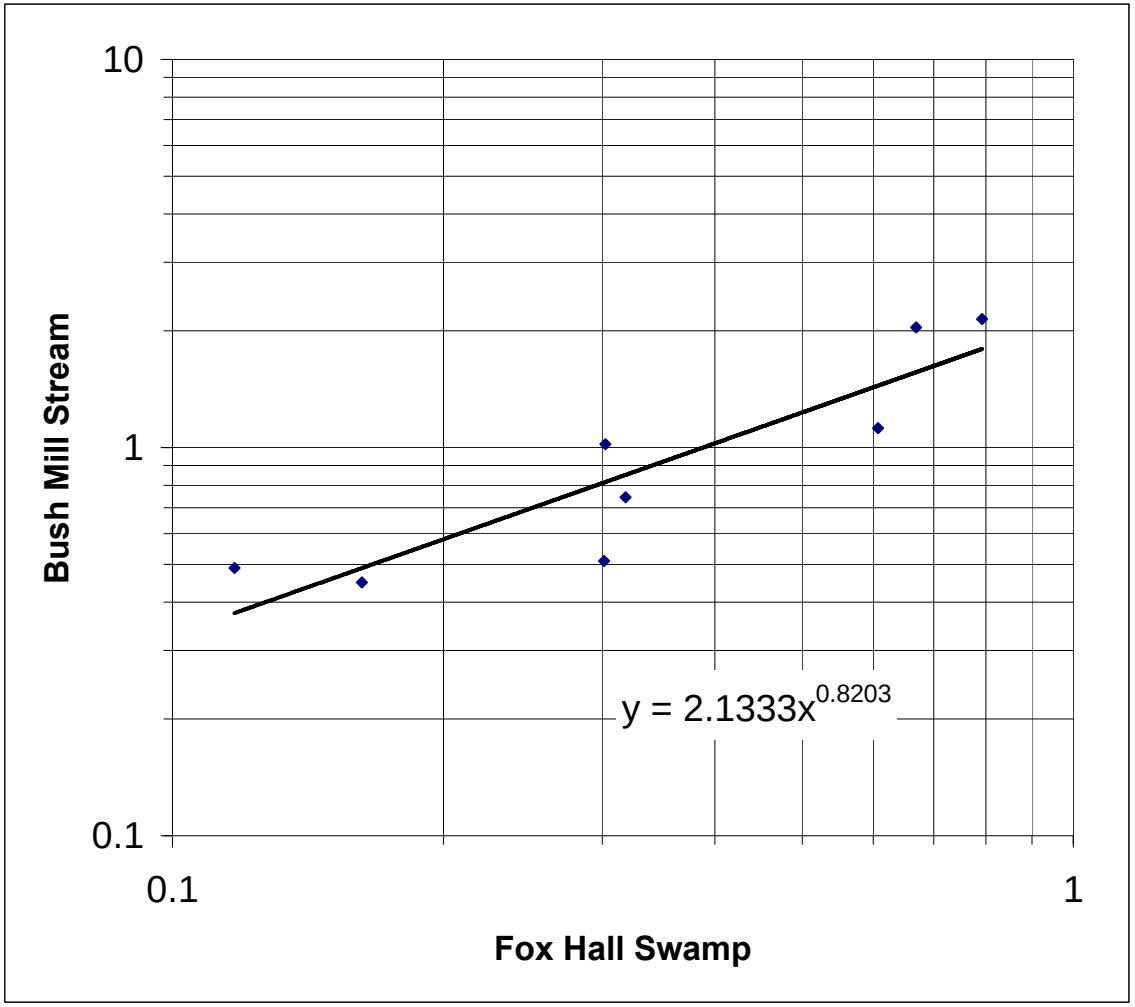
The receiving stream should be considered a Tier 1 water due to the existence of the discharge, which has been previously permitted at Tier 1 levels.

I have attached water quality data from for use in developing permit limits. The field data was collected from station 1AXFF001.61, which is located on the receiving stream directly below the outfall at the Route 3 bridge. However, hardness data has not been sampled at the station; therefore the hardness values from station 1AMAO007.46 were used. The station is located on the nontidal portion of Mattox Creek at the Route 627 bridge.

If you have any questions concerning this analysis, please do not hesitate to ask.

Fox Hall Swamp near Potomac Mills, VA #01660870
vs Bush Mill Stream near Heathsville, VA #01661800

Regression Analysis



Flow Data (cfs)

Date	Fox Hall Swamp	Bush Mill Stream
8/19/1980	0.302	1.0
9/11/1980	0.117	0.48
6/24/1981	0.606	1.1
9/30/1981	0.162	0.44
11/16/1981	0.668	2.0
7/26/1982	0.301	0.50
11/1/1982	0.791	2.1
7/19/1983	0.318	0.73
7/26/1991	1.29	

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.923815912
R Square	0.853435839
Adjusted R Square	0.829008479
Standard Error	0.275695245
Observations	8

Flow Frequencies (cfs)

Bush Mill Stream		Fox Hall Swamp	Mattox Creek, UT
0.01	1Q30	0.05	0.07
0.04	1Q10	0.15	0.20
0.06	7Q10	0.21	0.28
0.18	30Q10	0.52	0.70
0.37	30Q5	0.94	1.3
1.5	HF1Q10	3.0	4.0
1.7	HF7Q10	3.3	4.4
3.1	HF30Q10	5.4	7.2
-	HM	-	-
6.82	DA	2.29	3.06

Jan-May
Stat Period: 1963-1987

2008 Fact Sheets for 303(d) Waters

RIVER BASIN: Potomac River & Shenandoah River Basins **HYDROLOGIC UNIT:** 02070011

STREAM NAME: **Mattox Creek**

TMDL ID: **A31R-02-DO** **2008 IMPAIRED AREA ID:** VAP-A31R-02

ASSESSMENT CATEGORY: 5C **TMDL DUE DATE:** 2018

IMPAIRED SIZE: 31.62 - Miles **Watershed:** VAP-A31R

INITIAL LISTING: 2006

UPSTREAM LIMIT:

DESCRIPTION: Headwaters

DOWNSTREAM LIMIT:

DESCRIPTION: Tidal limit

Mattox Creek watershed from its headwaters to the limit of tide.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT: Dissolved Oxygen

The segment was assessed during the 2006 cycle as impaired of the Aquatic Life use support goal based on dissolved oxygen violations. The 2008 violation rates are below. The DO TMDL is due in 2018.

1AMAO007.46 - DO 4/35
1AMAO010.27 - DO 5/22

IMPAIRMENT SOURCE Natural Conditions

The source of the DO impairment in this segment is currently considered unknown, but is suspected to be the result of forest leaf decay.

Targeted monitoring may be necessary to further delineate the extent of impairment and to characterize its causes and sources.

RECOMMENDATION: Problem Characterization

2008 Fact Sheets for 303(d) Waters

RIVER BASIN: Potomac River & Shenandoah River Basins **HYDROLOGIC UNIT:** 02070011

STREAM NAME: **Mattox Creek**

TMDL ID: **A31R-02-PH** **2008 IMPAIRED AREA ID:** VAP-A31R-02

ASSESSMENT CATEGORY: 5C **TMDL DUE DATE:** 2014

IMPAIRED SIZE: 31.62 - Miles **Watershed:** VAP-A31R

INITIAL LISTING: 2002

UPSTREAM LIMIT:

DESCRIPTION: Headwaters

DOWNSTREAM LIMIT:

DESCRIPTION: Tidal limit

Mattox Creek watershed from its headwaters to the limit of tide.

CLEAN WATER ACT GOAL AND USE SUPPORT:

Aquatic Life Use - Not Supporting

IMPAIRMENT: pH

The segment was assessed during the 1998 cycle as threatened of the Aquatic Life use support goal based on pH violations at the Route 627 bridge (1AMAO007.46). During the year 2002 cycle, the segment was downgraded based on the results of a special study and the segment length was revised to end at the tidal limit. The pH TMDL is due in 2014. During the 2006 cycle, additional monitoring in the watershed confirmed the pH impairment. The 2008 pH violation rates are below.

1AMAO007.46 - pH 16/22
1AMAO010.27 - pH 19/22
1AKIG000.62 - pH 16/22
1ACOW000.38 - pH 17/22
1AXFF001.61 - pH 8/22

The mileage was adjusted in 2006 although the area was not changed.

IMPAIRMENT SOURCE Natural Conditions

The source of the pH impairment in this segment is currently considered unknown, but is suspected to be the result of forest leaf decay.

Targeted monitoring may be necessary to further delineate the extent of impairment and to characterize its causes and sources.

RECOMMENDATION: Problem Characterization

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Piedmont Regional Office

4949-A Cox Road, Glen Allen, VA 23060-6296 **804/527-5020**

SUBJECT: **Stream Sanitation Analysis – Mattox Creek, UT**
Washington District Elementary School (VA0082058)

TO: **Jeremy Kazio**

FROM: **Jennifer Palmore, P.G.**

DATE: **May 7, 2010**
REVISED: **June 21, 2010**

COPIES: **Curt Linderman, model file**

A request for a stream sanitation analysis for the Washington District Elementary School was received in April 2010. The school has requested reissuance of the permit at the current design flow of 0.006 MGD.

During the previous permit cycle, the facility indicated that it discharged to an intermittent tributary of Mattox Creek. The DEQ assigned permit effluent limits of 10 mg/L carbonaceous biochemical oxygen demand (cBOD5), 10 mg/L total suspended solids (TSS), and 3.0 mg/L total Kjeldahl nitrogen (TKN). These limits are typically recommended for intermittent streams based on A.J. Anthony's March 9, 1987 memorandum "Advisory Notification of Effluent Limits for Swamp and Marsh Waters" and are considered representative of a "self-sustaining" effluent.

The facility also received an effluent limit of 6.9 mg/L minimum dissolved oxygen (DO). File records indicate the facility was modeled on 6/12/1989 using Regional Model 1.2. The dissolved oxygen limit was presumably assigned at that time; however, no model documentation can be located.

During the current permit reissuance, DEQ determined that the previously reported outfall location was incorrect. The facility discharges to a different unnamed tributary to Mattox Creek which is a perennial waterbody (refer to flow frequency memorandum – J. Palmore, January 7, 2010). Due to this new information, DEQ needs to re-determine the appropriate effluent limits.

The receiving stream is currently recommended for reclassification as a Class VII swampwater and there is evidence of low dissolved oxygen at monitoring station 1AXFF001.61, which is located directly below the outfall. In addition, the Rollins Fork USGS 7½' topographic quadrangle indicates that the tributary enters a swampy area approximately 0.16 mile below the outfall. At the swamp boundary, the "10/10/3" limits listed above for $cBOD_5$, Total Suspended Solids, and TKN must be met in accordance with A.J. Anthony's memorandum. Due to the low dissolved oxygen and the short distance before entering the swamp, Regional Model 4.2 is not appropriate for use in modeling the receiving stream. Therefore I recommend that the limits be assigned directly at the outfall. In addition, I recommend a minimum dissolved oxygen limit of 5.0 mg/L.

If you have any questions or need any additional information, please do not hesitate to contact me.

UBJECT: Advisory Notification of Effluent Limits for Swamp and Marsh Waters

TO: L. G. Lawson

FROM: A. J. Anthony AJA

DATE: March 9, 1987

COPIES: M. A. Bellanca, W. L. Woodfin, M. D. Phillips, J. W. Gregory, Regional Directors, file

In the event that a proposal is received for discharge to a swamp or marsh that cannot be modeled and the current standards are being violated for whatever reason, OERS recommends the following effluent limits:

$CBOD_5$ =	10 mg/l
TSS =	10 mg/l
TKN =	3 mg/l
D.O. =	3 mg/l
Cl_2 =	0.011 mg/l

Our rationale for these recommendations are as follow:

We have found over the past years, through application of modeling technology to small streams, that the above limits are representative of effluents that are "self-sustaining"; that is: such an effluent will not normally violate the stream standard even if the stream consists of 100% effluent.

Given the fact that the areas of intended application of our recommendations are such that the stream will not possess good mixing processes and may in fact contain 100% effluent for significant distances and times render it necessary, in our opinion, that discharges be essentially of "self-sustaining" quality.

2. $CBOD_5$ -- We are recommending nitrification and consequently $CBOD^5$ is what will be measured. In addition, we believe that where both unoxidized nitrogen and hydrocarbons are limited due to considerations of stream dissolved oxygen, it is correct and reasonable to specify them separately to avoid double counting their impacts.

3. TSS -- We are recommending that TSS be consistent with the BOD limit. This is consistent with past and current practice and should not be difficult to attain.

4 TKN -- We are recommending that unoxidized nitrogen be removed in the treatment plant. The recommended limit on TKN recognizes that a normal domestic effluent usually contains 2-3 mg/l TKN that is refractory and cannot be removed by biological treatment. For industrial discharges this may vary and may be verified by testing. The intent of our recommendation is to remove all biologically oxidizable nitrogen compounds from the effluent.

5. D.O. -- We are recommending that the dissolved oxygen in the effluent be reasonably consistent with that expected to occur in the receiving stream.

6. Cl_2 -- Mixing can be expected to be extremely poor or non-existent and the stream can be expected to contain 100% effluent for significant distances and times. In order to ensure that the chlorine standard is not violated, the discharge must meet the standard.

It is our belief that the above limits will be adequate to:

1. Protect the beneficial uses of and the aquatic life to be expected in swampy and/or marshy streams.

2. Ensure that the limits will not result in additional degradation to the receiving stream.

Provide consistency with the intent and requirements of the law.

It must be pointed out that the above limits are based on the professional opinions of OERS. They are not the result of the application of any predictive technology. The negotiations and trade-offs normally associated with the application of modeling to identify permit limits are simply not practical in this case for the following reasons:

1. There are no models available with which to evaluate various alternatives.

2. The recommended limits are based on professional opinion and are therefore not subject to negotiation.

3. The recommended limits are very stringent and essentially leave no room for trade-offs among the parameters.

As is the case with all guidance provided by OERS, the Regions should obtain concurrence from OERS prior to drafting a permit with the above limits. In addition, if the proposed discharger disagrees with the limits established, then it is our opinion that ample precedent has been established to allow the dischargers to model the system or provide other documentation that the limits as established are not correct subject to the review and approval of the Board.

Please note that toxic requirements are not covered in this memo, and should follow the normal routine for toxics-related issues.

:swamp

Ambient Stream Data - Monitoring Station 1AXFF001.61
For Washington District Elementary School WWTP (VA0082058)
2010 Permit Reissuance

Station ID	Collection Date	Depth Desc	Depth	Temperature (°C)	Temperature - Wet Season (°C)	Field pH	D.O. Probe (mg/L)
1AXFF001.61	7/21/2003	S	0.3	22.22		6.55	8
1AXFF001.61	8/19/2003	S	0.3	21.97		6.23	**3.76**
1AXFF001.61	9/10/2003	S	0.3	19.38		6.19	8.67
1AXFF001.61	10/1/2003	S	0.3	14.67		6.17	7.16
1AXFF001.61	11/5/2003	S	0.3	18.39	18.39	6.82	5.5
1AXFF001.61	12/9/2003	S	0.3	5.82	5.82	**5.8**	10.88
1AXFF001.61	1/15/2004	S	0.3	4.06	4.06	**5.26**	11.95
1AXFF001.61	2/20/2004	S	0.3	5.99	5.99	**5.59**	11.75
1AXFF001.61	3/8/2004	S	0.3	10.49	10.49	**5.64**	10.33
1AXFF001.61	4/7/2004	S	0.3	13.15	13.15	6.09	10.62
1AXFF001.61	5/20/2004	S	0.3	19.54		**5.67**	7.5
1AXFF001.61	6/7/2004	S	0.3	19.47		6	7.81
1AXFF001.61	7/12/2004	S	0.3	22.93		6.26	7.27
1AXFF001.61	8/3/2004	S	0.3	23.34		**5.12**	5.78
1AXFF001.61	9/8/2004	S	0.3	21.29		6.21	6.82
1AXFF001.61	10/4/2004	S	0.3	17.24		6.35	7
1AXFF001.61	11/3/2004	S	0.3	16.36	16.36	**5.89**	6.75
1AXFF001.61	12/2/2004	S	0.3	8.8	8.8	6.27	10.01
1AXFF001.61	1/4/2005	S	0.3	12.28	12.28	6.3	9.92
1AXFF001.61	2/2/2005	S	0.3	4.04	4.04	6.42	12.43
1AXFF001.61	3/2/2005	S	0.3	5.98	5.98	6.11	12.48
1AXFF001.61	4/14/2005	S	0.3	13.47	13.47	**5.81**	10.78
90th Percentile				**22.2**	**16.1**	**6.4**	
10th Percentile				**5.8**	**4.2**	**5.6**	

Ambient Stream Data - Monitoring Station 1AMAO007.46
For Washington District Elementary School WWTP (VA0082058)
2010 Permit Reissuance

Sta Id	Collection Date Time	Depth Desc	Depth	HARDNESS, TOTAL (MG/L AS CACO3)
1AMAO007.46	04/17/1996 10:00	S	0.3	12
1AMAO007.46	07/22/1996 13:15	S	0.3	20
1AMAO007.46	10/21/1996 10:00	S	0.3	13
1AMAO007.46	01/16/1997 10:20	S	0.3	14.4
1AMAO007.46	04/04/1997 09:37	S	0.3	9.3
1AMAO007.46	07/15/1997 10:55	S	0.3	23.9
1AMAO007.46	09/11/1997 08:50	S	0.3	12
1AMAO007.46	11/13/1997 09:00	S	0.3	18.7
1AMAO007.46	01/12/1998 08:30	S	0.3	16.4
1AMAO007.46	03/12/1998 09:30	S	0.3	16.9
1AMAO007.46	05/13/1998 10:00	S	0.3	9.3
1AMAO007.46	07/15/1998 10:45	S	0.3	11.7
1AMAO007.46	09/09/1998 09:30	S	0.3	12.9
1AMAO007.46	11/05/1998 08:10	S	0.3	23
1AMAO007.46	01/11/1999 10:25	S	0.3	66
1AMAO007.46	03/02/1999 10:55	S	0.3	36
1AMAO007.46	05/05/1999 11:30	S	0.3	16
1AMAO007.46	07/13/1999 07:30	S	0.3	13.5
1AMAO007.46	09/02/1999 09:20	S	0.3	20.7
1AMAO007.46	01/06/2000 08:05	S	0.3	16.7
1AMAO007.46	03/23/2000 10:15	S	0.3	18
1AMAO007.46	05/08/2000 09:00	S	0.3	24
1AMAO007.46	07/12/2000 07:00	S	0.3	10
1AMAO007.46	09/07/2000 09:55	S	0.3	12.5
1AMAO007.46	11/02/2000 07:30	S	0.3	12.4
1AMAO007.46	01/04/2001 11:00	S	0.3	17.4
1AMAO007.46	03/07/2001 07:00	S	0.3	11.6
1AMAO007.46	06/13/2005 11:10	S	0.3	24
1AMAO007.46	08/29/2005 11:56	S	0.3	14
1AMAO007.46	10/05/2005 12:00	S	0.3	20
1AMAO007.46	12/15/2005 09:55	S	0.3	15
1AMAO007.46	02/02/2006 11:15	S	0.3	14
1AMAO007.46	04/24/2006 11:40	S	0.3	31
1AMAO007.46	06/07/2006 11:00	S	0.3	16
1AMAO007.46	08/03/2006 08:00	S	0.3	16
1AMAO007.46	10/05/2006 11:00	S	0.3	10
1AMAO007.46	12/07/2006 11:50	S	0.3	10
Average				**18**

Attachment D

Site Inspection Report

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Piedmont Regional Office

WASTEWATER FACILITY INSPECTION REPORT

FACILITY NAME:	Washington District Elementary School	**INSPECTOR:**	Mike Dare
PERMIT No.:	VA0082058	**INSPECTION DATE:**	May 2, 2007
TYPE OF FACILITY:	Municipal Small	**TIME OF INSPECTION:**	9:30 AM to 12:00 PM
COUNTY/~~CITY~~:	Westmoreland	**REPORT COMPLETED:**	May 7, 2007
REVIEWED BY:		**UNANNOUNCED INSPECTION:**	NO

PRESENT DURING INSPECTION: Gregory Hamlet – Class III Operator

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

Bar Screen: Wastewater from the nearby Washington District Elementary School flows by gravity to the bar screen. Screenings are limed and placed in a dumpster for landfill disposal. Approximately 5 gallons of screenings are collected every 2 to 3 weeks. Flow cascades through the bar screen and into the influent tank.

Influent Tank: The influent tank is aerated and provides flow equalization. The wastewater in the influent tank is pumped to a trough that directs the flow to the first of two aeration tanks.

Aeration Tanks: Biological treatment takes place in two aeration tanks which are operated in series. Located in the center of the second aeration tank is a bundle (4'x4'x2') of plastic drain pipes. The pipes serve as a media for the growth of additional nitrifying bacteria and were added to counter the demand on the plant caused by cleaners used at the school. (Information provided subsequent to inspection by Don Hearl – Environmental Systems Service, Ltd. – provider of laboratory and technical services for the plant.)

Clarifier: A clarifier follows the aeration tanks. Flow in the launders was clear with no visible solids or foam.

Emergency Holding Tank: Waste activated sludge is pumped from the clarifier to the emergency holding tank. Wasting occurs approximately every other day for five to ten minutes at a rate of 6 gallons per minute. The solids are removed as required by Berry Septic Pumping and hauled to the Little Falls Run WWTP.

Dosing Tank: Following the clarifier is a dosing tank. Float operated pumps move the flow from the dosing tank to the sand filter.

Sand Filter: Filtered flow moves to the chlorination system. Backwash wastewater is pumped to the influent tank.

Chlorination: Both of the tablet feed tubes in this two tube tablet chlorination system were in use. A baffled contact tank immediately follows the tablet feed system.

Flow Measurement: Following the contact tank is a weir–float–totalizer system for measuring the plant flow.

Dechlorination: Both of the tablet feed tubes in this two tube tablet dechlorination system were in use.

Outfall: The access path to the outfall is well maintained. The outfall is on a tributary of the Mattox Creek. Due to a failure of the outfall line, most of the flow was discharging at a point approximately 40 feet from the banks of the tributary.

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

Cross Connection Control Device – tested and certified 4/10/2007.

The 5/2/07 30-min. settling for Aeration 1 was 325 ml/l.

The effluent flow measurement system was last calibrated 2/9/2007.

Mr. Hamlet reported that in approximately two years, the flow from the school may be handled by a vacuum system at the Westmoreland Shores Community. The flow would then receive treatment at the Colonial Beach WWTP.

EFFLUENT and FIELD DATA:

Flow	Not obtained	**Dissolved Oxygen**	9.16 mg/L	**Contact Chlorine Residual**	3.55 mg/L
pH	7.81 SU	**Final Chlorine Res.**	0.1 mg/L	**Temperature**	18.3 degree C

Calibration Time/Initials/documentation: Sample collection and analysis by G. Hamlett at approx. 11:05 AM

Condition of Outfall and Receiving Stream: Clear with no visible solids or foam

COMMENTS:

Items evaluated during this inspection include (check all that apply):

[x] Yes	[ ] No		Operational Units
[x] Yes	[ ] No		O & M Manual
[x] Yes	[ ] No		Maintenance Records
[ ] Yes	[ ] No	[x] N/A	Pathogen Reduction & Vector Attraction Reduction
[ ] Yes	[x] No	[ ] N/A	Sludge Disposal Plan
[ ] Yes	[ ] No	[x] N/A	Groundwater Monitoring Plan
[ ] Yes	[ ] No	[x] N/A	Storm Water Pollution Prevention Plan
[x] Yes	[ ] No	[ ] N/A	Permit Special Conditions
[ ] Yes	[ ] No	[x] N/A	Permit Water Quality Chemical Monitoring
[x] Yes	[ ] No	[ ] N/A	Laboratory Records (see Lab Report)

GENERAL RECOMMENDATIONS:

1. The December 2006 DMR indicates 9 of the 16 results for the chlorine contact effluent were above 3.0 mg/l. While this is not a non-compliance of the permit it is recommended that this residual be lowered somewhat (but still above the contact tank effluent limit) to save on chemical costs as well as to help ensure that the limitation at the final effluent is met. (See item 2 in the next section for related information.)

COMPLIANCE RECOMMENDATIONS/REQUEST FOR CORRECTIVE ACTION:

1. It was noted during this inspection that the plant typically operates for five consecutive days and then there is no discharge for two days. This is in violation of Part IC12 of the permit which indicates that after three consecutive days of discharge, there shall be no discharge for a minimum period of 24 hours. Please submit a plan, for approval by DEQ, outlining what measures will be taken to bring the plant into compliance with this part of the permit.

2. The final chlorine residual measured this date at approximately 11:05 AM was 0.1 mg/l. While not a Permit non-compliance in and of itself, this reading is at the quantification level for this parameter and therefore 0.1 and not 0 must be used in the determination of weekly and monthly averages. (Because this date is in an incomplete week, the weekly average does not apply – see Permit Part IC9b.) Mr. Hamlet reported that the dechlorination system is checked for proper operation when there is an increase in the chlorine residual at the final effluent. **(No further action required.)**

3. The outfall is on a tributary of the Mattox Creek. Due to a failure of the outfall line, most of the flow was discharging at a point approximately 40 feet from the banks of the tributary. The outfall line must be repaired.

Copies:

Owner
DEQ - OWPP (attn.: S. Stell)
DEQ Technical File
Greg Hamlet, Chief Wastewater Operator

Attachment E

Effluent Data and Limitation Evaluations

MSTRANTI DATA SOURCE REPORT

Washington District Elementary School WWTP: VA0082058

2010 Permit Reissuance

Stream Information	
Mean Hardness	Taken from data collected at monitoring station 1AMAO007.46. The average hardness of the receiving stream (18 mg/L) was less than the minimum threshold of 25 mg/L needed to calculate wasteload allocations, so 25 mg/L was entered.
90% Temperature (annual)	Calculated from data collected from monitoring station 1AXFF001.61.
90% Temperature (wet season)	
90% Maximum pH	
10% Maximum pH	
Tier Designation	Flow Frequency Analysis
Stream Flows	
All Data	Flow Frequency Analysis
Mixing Information	
All Data	MIX.exe
Effluent Information	
Mean Hardness	No data are available. The hardness concentration is, in this instance, a conservative assumption.
90% Temperature (annual)	Due to the downstream proximity of monitoring station 1AXFF001.61 from the discharge point, it is assumed that data from this station are representative of the water quality existing within the mixing zone of this discharge. Consequently, mixing calculations are not necessary for determining the concentrations of parameters used to calculate waste load allocations. In order to prevent MSTRANTI from doing this, water quality data from the monitoring station have been applied to both the receiving stream information and the effluent information.
90% Maximum pH	
10% Maximum pH	
Discharge Flow	STP Design Flow provided by the permittee in Form 2A.

Mixing Zone Predictions for Washington District Elementary School WWTP

Effluent Flow = 0.006 MGD
Stream 7Q10 = 0.18 MGD
Stream 30Q10 = 0.45 MGD
Stream 1Q10 = 0.13 MGD
Stream slope = 0.013 ft/ft
Stream width = 10 ft
Bottom scale = 1
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .0574 ft
Length = 2256.28 ft
Velocity = .5017 ft/sec
Residence Time = .0521 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .0986 ft
Length = 1429.23 ft
Velocity = .7158 ft/sec
Residence Time = .0231 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .0475 ft
Length = 2643.54 ft
Velocity = .443 ft/sec
Residence Time = 1.6577 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 60.33% of the 1Q10 is used.

Virginia DEQ Mixing Zone Analysis Version 2.1

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Washington District Elementary School Permit No.: VA0082058

Receiving Stream: UT Mattox Creek Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		
Mean Hardness (as CaCO3) =	25	mg/L
90% Temperature (Annual) =	22.2	deg C
90% Temperature (Wet season) =	16.1	deg C
90% Maximum pH =	6.4	SU
10% Maximum pH =	5.6	SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS) Y/N? =	n	
Trout Present Y/N? =	n	
Early Life Stages Present Y/N? =	y	

Stream Flows		
1Q10 (Annual) =	0.13	MGD
7Q10 (Annual) =	0.18	MGD
30Q10 (Annual) =	0.45	MGD
1Q10 (Wet season) =	2.6	MGD
30Q10 (Wet season)	4.7	MGD
30Q5 =	0.82	MGD
Harmonic Mean =		MGD

Mixing Information		
Annual - 1Q10 Mix =	60.33	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	60.33	%
- 30Q10 Mix =	100	%

Effluent Information		
Mean Hardness (as CaCO3) =	25	mg/L
90% Temp (Annual) =	22.2	deg C
90% Temp (Wet season) =	16.1	deg C
90% Maximum pH =	6.4	SU
10% Maximum pH =	5.6	SU
Discharge Flow =	0.006	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**				Lowest LTA
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**	
Acenapthene	0	--	--	na	9.9E+02	--	--	na	1.4E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.4E+05**	--
Acrolein	0	--	--	na	9.3E+00	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.3E+03**	--
Acrylonitrile [C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.5E+00**	--
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	4.2E+01	--	na	5.0E-04	--	--	--	--	--	--	--	--	**4.2E+01**	**--**	**na**	**5.0E-04**	1.73E+01
Ammonia-N (mg/l) (Yearly)	0	5.00E+01	4.11E+00	na	--	7.0E+02	3.1E+02	na	--	--	--	--	--	--	--	--	--	**7.0E+02**	**3.1E+02**	**na**	**--**	1.88E+02
Ammonia-N (mg/l) (High Flow)	0	5.05E+01	6.09E+00	na	--	1.3E+04	4.8E+03	na	--	--	--	--	--	--	--	--	--	**1.3E+04**	**4.8E+03**	**na**	**--**	2.87E+03
Anthracene	0	--	--	na	4.0E+04	--	--	na	5.5E+06	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**5.5E+06**	--
Antimony	0	--	--	na	6.4E+02	--	--	na	8.8E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**8.8E+04**	--
Arsenic	0	3.4E+02	1.5E+02	na	--	4.8E+03	4.7E+03	na	--	--	--	--	--	--	--	--	--	**4.8E+03**	**4.7E+03**	**na**	**--**	1.97E+03
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**5.1E+02**	--
Benzidine [C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.0E-03**	--
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.8E-01**	--
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.8E-01**	--
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.8E-01**	--
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.8E-01**	--
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**5.3E+00**	--
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	8.9E+06	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**8.9E+06**	--
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.2E+01**	--
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.4E+03**	--
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	2.6E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.6E+05**	--
Cadmium	0	8.2E-01	3.8E-01	na	--	1.2E+01	1.2E+01	na	--	--	--	--	--	--	--	--	--	**1.2E+01**	**1.2E+01**	**na**	**--**	4.75E+00
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.6E+01**	--
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	3.4E+01	1.3E-01	na	8.1E-03	--	--	--	--	--	--	--	--	**3.4E+01**	**1.3E-01**	**na**	**8.1E-03**	8.01E-02
Chloride	0	8.6E+05	2.3E+05	na	--	1.2E+07	7.1E+06	na	--	--	--	--	--	--	--	--	--	**1.2E+07**	**7.1E+06**	**na**	**--**	4.29E+06
TRC	0	1.9E+01	1.1E+01	na	--	2.7E+02	3.4E+02	na	--	--	--	--	--	--	--	--	--	**2.7E+02**	**3.4E+02**	**na**	**--**	1.10E+02
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	2.2E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.2E+05**	--
Chlorodibromomethane [C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.3E+02**	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**				Lowest LTA
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**	
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.5E+06	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.5E+06**	--
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	2.2E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.2E+05**	--
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.1E+04**	--
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	1.2E+00	1.3E+00	na	--	--	--	--	--	--	--	--	--	**1.2E+00**	**1.3E+00**	**na**	**--**	4.80E-01
Chromium III	0	1.8E+02	2.4E+01	na	--	2.6E+03	7.4E+02	na	--	--	--	--	--	--	--	--	--	**2.6E+03**	**7.4E+02**	**na**	**--**	4.44E+02
Chromium VI	0	1.6E+01	1.1E+01	na	--	2.3E+02	3.4E+02	na	--	--	--	--	--	--	--	--	--	**2.3E+02**	**3.4E+02**	**na**	**--**	9.25E+01
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Chrysene [C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.8E-02**	--
Copper	0	3.6E+00	2.7E+00	na	--	5.1E+01	8.5E+01	na	--	--	--	--	--	--	--	--	--	**5.1E+01**	**8.5E+01**	**na**	**--**	2.11E+01
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	3.1E+02	1.6E+02	na	2.2E+06	--	--	--	--	--	--	--	--	**3.1E+02**	**1.6E+02**	**na**	**2.2E+06**	9.69E+01
DDD [C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.1E-03**	--
DDE [C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.2E-03**	--
DDT [C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.5E+01	3.1E-02	na	2.2E-03	--	--	--	--	--	--	--	--	**1.5E+01**	**3.1E-02**	**na**	**2.2E-03**	1.86E-02
Demeton	0	--	1.0E-01	na	--	--	3.1E+00	na	--	--	--	--	--	--	--	--	--	**--**	**3.1E+00**	**na**	**--**	1.86E+00
Diazinon	0	1.7E-01	1.7E-01	na	--	2.4E+00	5.3E+00	na	--	--	--	--	--	--	--	--	--	**2.4E+00**	**5.3E+00**	**na**	**--**	9.83E-01
Dibenz(a,h)anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.8E-01**	--
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.8E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.8E+05**	--
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	1.3E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.3E+05**	--
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	2.6E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.6E+04**	--
3,3-Dichlorobenzidine [C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.8E-01**	--
Dichlorobromomethane [C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.7E+02**	--
1,2-Dichloroethane [C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.7E+02**	--
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	9.8E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**9.8E+05**	--
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.4E+06	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.4E+06**	--
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.0E+04**	--
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
1,2-Dichloropropane [C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.5E+02**	--
1,3-Dichloropropene [C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.1E+02**	--
Dieldrin [C]	0	2.4E-01	5.6E-02	na	5.4E-04	3.4E+00	1.7E+00	na	5.4E-04	--	--	--	--	--	--	--	--	**3.4E+00**	**1.7E+00**	**na**	**5.4E-04**	1.04E+00
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	6.1E+06	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.1E+06**	--
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	1.2E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.2E+05**	--
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.5E+08	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.5E+08**	--
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	6.2E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.2E+05**	--
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	7.3E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.3E+05**	--
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	3.9E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.9E+04**	--
2,4-Dinitrotoluene [C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.4E+01**	--
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	7.0E-06	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.0E-06**	--
1,2-Diphenylhydrazine [C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.0E+00**	--
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	3.1E+00	1.7E+00	na	1.2E+04	--	--	--	--	--	--	--	--	**3.1E+00**	**1.7E+00**	**na**	**1.2E+04**	1.04E+00
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	3.1E+00	1.7E+00	na	1.2E+04	--	--	--	--	--	--	--	--	**3.1E+00**	**1.7E+00**	**na**	**1.2E+04**	1.04E+00
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	3.1E+00	1.7E+00	--	--	--	--	--	--	--	--	--	--	**3.1E+00**	**1.7E+00**	**--**	**--**	1.04E+00
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.2E+04**	--
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	1.2E+00	1.1E+00	na	8.3E+00	--	--	--	--	--	--	--	--	**1.2E+00**	**1.1E+00**	**na**	**8.3E+00**	4.97E-01
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	4.1E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.1E+01**	--
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.9E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.9E+05**	--
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.9E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.9E+04**	--
Fluorene	0	--	--	na	5.3E+03	--	--	na	7.3E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.3E+05**	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**				Lowest LTA
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**	
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Guthion	0	--	1.0E-02	na	--	--	3.1E-01	na	--	--	--	--	--	--	--	--	--	**--**	**3.1E-01**	**na**	**--**	1.86E-01
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	7.3E+00	1.2E-01	na	7.9E-04	--	--	--	--	--	--	--	--	**7.3E+00**	**1.2E-01**	**na**	**7.9E-04**	7.08E-02
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	na	3.9E-04	7.3E+00	1.2E-01	na	3.9E-04	--	--	--	--	--	--	--	--	**7.3E+00**	**1.2E-01**	**na**	**3.9E-04**	7.08E-02
Hexachlorobenzene[C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.9E-03**	--
Hexachlorobutadiene[C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.8E+02**	--
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.9E-02**	--
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.7E-01**	--
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	na	na	1.8E+00	1.3E+01	--	na	1.8E+00	--	--	--	--	--	--	--	--	**1.3E+01**	**--**	**na**	**1.8E+00**	5.49E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.5E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.5E+05**	--
Hexachloroethane[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.3E+01**	--
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	6.2E+01	na	--	--	--	--	--	--	--	--	--	**--**	**6.2E+01**	**na**	**--**	3.73E+01
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.8E-01**	--
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Isophorone[C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**9.6E+03**	--
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	**--**	**0.0E+00**	**na**	**--**	0.00E+00
Lead	0	2.0E+01	2.3E+00	na	--	2.9E+02	7.2E+01	na	--	--	--	--	--	--	--	--	--	**2.9E+02**	**7.2E+01**	**na**	**--**	4.31E+01
Malathion	0	--	1.0E-01	na	--	--	3.1E+00	na	--	--	--	--	--	--	--	--	--	**--**	**3.1E+00**	**na**	**--**	1.86E+00
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Mercury	0	1.4E+00	7.7E-01	- -	- -	2.0E+01	2.4E+01	- -	- -	--	--	--	--	--	--	--	--	**2.0E+01**	**2.4E+01**	**- -**	**- -**	8.10E+00
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	2.1E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.1E+05**	--
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**5.9E+03**	--
Methoxychlor	0	--	3.0E-02	na	--	--	9.3E-01	na	--	--	--	--	--	--	--	--	--	**--**	**9.3E-01**	**na**	**--**	5.59E-01
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	**--**	**0.0E+00**	**na**	**--**	0.00E+00
Nickel	0	5.6E+01	6.3E+00	na	4.6E+03	7.9E+02	1.9E+02	na	6.3E+05	--	--	--	--	--	--	--	--	**7.9E+02**	**1.9E+02**	**na**	**6.3E+05**	1.17E+02
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	9.5E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**9.5E+04**	--
N-Nitrosodimethylamine[C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.0E+01**	--
N-Nitrosodiphenylamine[C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.0E+01**	--
N-Nitrosodi-n-propylamine[C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**5.1E+00**	--
Nonylphenol	0	2.8E+01	6.6E+00	--	--	3.9E+02	2.0E+02	na	--	--	--	--	--	--	--	--	--	**3.9E+02**	**2.0E+02**	**na**	**--**	1.23E+02
Parathion	0	6.5E-02	1.3E-02	na	--	9.1E-01	4.0E-01	na	--	--	--	--	--	--	--	--	--	**9.1E-01**	**4.0E-01**	**na**	**--**	2.42E-01
PCB Total[C]	0	--	1.4E-02	na	6.4E-04	--	4.3E-01	na	6.4E-04	--	--	--	--	--	--	--	--	**--**	**4.3E-01**	**na**	**6.4E-04**	2.61E-01
Pentachlorophenol [C]	0	2.2E+00	1.7E+00	na	3.0E+01	3.1E+01	5.2E+01	na	3.0E+01	--	--	--	--	--	--	--	--	**3.1E+01**	**5.2E+01**	**na**	**3.0E+01**	1.28E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	1.2E+08	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.2E+08**	--
Pyrene	0	--	--	na	4.0E+03	--	--	na	5.5E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**5.5E+05**	--
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	5.5E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**5.5E+02**	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.8E+02	1.6E+02	na	5.8E+05	--	--	--	--	--	--	--	--	**2.8E+02**	**1.6E+02**	**na**	**5.8E+05**	9.32E+01
Silver	0	3.2E-01	--	na	--	4.5E+00	--	na	--	--	--	--	--	--	--	--	--	**4.5E+00**	**--**	**na**	**--**	1.84E+00
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.0E+01**	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**				Lowest LTA
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**	
Tetrachloroethylene [C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.3E+01**	--
Thallium	0	--	--	na	4.7E-01	--	--	na	6.5E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.5E+01**	--
Toluene	0	--	--	na	6.0E+03	--	--	na	8.3E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**8.3E+05**	--
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	1.0E+01	6.2E-03	na	2.8E-03	--	--	--	--	--	--	--	--	**1.0E+01**	**6.2E-03**	**na**	**2.8E-03**	3.73E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	6.5E+00	2.2E+00	na	--	--	--	--	--	--	--	--	--	**6.5E+00**	**2.2E+00**	**na**	**--**	1.34E+00
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**9.6E+03**	--
1,1,2-Trichloroethane [C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.6E+02**	--
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.0E+02**	--
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**	--
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**	--
Vinyl Chloride [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**	--
Zinc	0	3.6E+01	3.6E+01	na	2.6E+04	5.1E+02	1.1E+03	na	3.6E+06	--	--	--	--	--	--	--	--	**5.1E+02**	**1.1E+03**	**na**	**3.6E+06**	2.09E+02

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	8.8E+04
Arsenic	1.9E+03
Barium	na
Cadmium	4.6E+00
Chromium III	4.4E+02
Chromium VI	9.0E+01
Copper	2.0E+01
Iron	na
Lead	4.3E+01
Manganese	na
Mercury	7.9E+00
Nickel	1.2E+02
Selenium	9.3E+01
Silver	1.8E+00
Zinc	2.0E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

6/21/2010 9:56:50 AM

Facility = Washington District Elementary School
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 700
WLAc = 310
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

9

6/21/2010 9:58:58 AM

Facility = Washington District Elementary School
Chemical = TRC
Chronic averaging period = 4
WLAa = 270
WLAc = 340
Q.L. = 100
# samples/mo. = 30
# samples/wk. = 7

Summary of Statistics:

observations = 1
Expected Value = 20000
Variance = 1440000
C.V. = 0.6
97th percentile daily values = 48668.3
97th percentile 4 day average = 33275.8
97th percentile 30 day average= 24121.0
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 270
Average Weekly limit = 164.890945823048
Average Monthly LImit = 133.817714244273

The data are:

20000

2005 Permit

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Washington District Elementary School Permit No.: VA0082058

Receiving Stream: UTRIB to Mattox Creek Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	18 mg/L
90% Temperature (Annual) =	21.59 deg C *
90% Temperature (Wet season) =	deg C
90% Maximum pH =	6.19 SU
10% Maximum pH =	5.38 SU
Tier Designation (1 or 2) =	1
Public Water Supply (PWS) Y/N? =	n
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	n

Stream Flows

1Q10 (Annual) =	0 MGD
7Q10 (Annual) =	0 MGD
30Q10 (Annual) =	0 MGD
1Q10 (Wet season) =	0 MGD
30Q10 (Wet season)	0 MGD
30Q5 =	0 MGD
Harmonic Mean =	0 MGD
Annual Average =	0 MGD

Mixing Information

Annual - 1Q10 Mix =	100 %
- 7Q10 Mix =	100 %
- 30Q10 Mix =	100 %
Wet Season - 1Q10 Mix =	%
- 30Q10 Mix =	%

Effluent Information

Mean Hardness (as CaCO3) =	25 mg/L
90% Temp (Annual) =	24.7 deg C * *
90% Temp (Wet season) =	deg C
90% Maximum pH =	8.886 SU
10% Maximum pH =	8.016 SU
Discharge Flow =	0.006 MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	2.7E+03	--	--	na	2.7E+03	--	--	--	--	--	--	--	--	--	--	na	2.7E+03
Acrolein	0	--	--	na	7.8E+02	--	--	na	7.8E+02	--	--	--	--	--	--	--	--	--	--	na	7.8E+02
Acrylonitrile [C]	0	--	--	na	6.6E+00	--	--	na	6.6E+00	--	--	--	--	--	--	--	--	--	--	na	6.6E+00
Aldrin [C]	0	3.0E+00	--	na	1.4E-03	3.0E+00	--	na	1.4E-03	--	--	--	--	--	--	--	--	3.0E+00	--	na	1.4E-03
Ammonia-N (mg/l) (Yearly)	0	1.59E+00	2.99E-01	na	--	1.6E+00	3.0E-01	na	--	--	--	--	--	--	--	--	--	1.6E+00	3.0E-01	na	--
Ammonia-N (mg/l) (High Flow)	0	1.59E+00	9.37E-01	na	--	1.6E+00	9.4E-01	na	--	--	--	--	--	--	--	--	--	1.6E+00	9.4E-01	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	1.1E+05	--	--	--	--	--	--	--	--	--	--	na	1.1E+05
Antimony	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	--	--	--	na	4.3E+03
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	7.1E+02	--	--	na	7.1E+02	--	--	--	--	--	--	--	--	--	--	na	7.1E+02
Benzidine [C]	0	--	--	na	5.4E-03	--	--	na	5.4E-03	--	--	--	--	--	--	--	--	--	--	na	5.4E-03
Benzo (a) anthracene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Benzo (b) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Benzo (k) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Benzo (a) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Bis2-Chloroethyl Ether	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	--	--	--	--	na	1.4E+01
Bis2-Chloroisopropyl Ether	0	--	--	na	1.7E+05	--	--	na	1.7E+05	--	--	--	--	--	--	--	--	--	--	na	1.7E+05
Bromoform [C]	0	--	--	na	3.6E+03	--	--	na	3.6E+03	--	--	--	--	--	--	--	--	--	--	na	3.6E+03
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	5.2E+03	--	--	--	--	--	--	--	--	--	--	na	5.2E+03
Cadmium	0	8.2E-01	3.8E-01	na	--	8.2E-01	3.8E-01	na	--	--	--	--	--	--	--	--	--	8.2E-01	3.8E-01	na	--
Carbon Tetrachloride [C]	0	--	--	na	4.4E+01	--	--	na	4.4E+01	--	--	--	--	--	--	--	--	--	--	na	4.4E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	2.2E-02	2.4E+00	4.3E-03	na	2.2E-02	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	2.2E-02
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04

* Temperature value obtained 90th percentile of stream data at Station 1AMA000746 provided by Jen Palmore in Attachment 6.

** Effluent temperature obtained from information reported in application - summer maximum.

1/24/05 10:31:53 AM

2005 Permit

Facility = Washington District Elem. School
Chemical = TRC
Chronic averaging period = 4
WLAa = 19
WLAc =
Q.L. = .1
# samples/mo. = 30
# samples/wk. = 7

Summary of Statistics:

observations = 1
Expected Value = 20000
Variance = 1440000
C.V. = 0.6
97th percentile daily values = 48668.3
97th percentile 4 day average = 33275.8
97th percentile 30 day average= 24121.0
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 19
Average Weekly limit = 11.6034369282885 = 0.012 mg/l
Average Monthly LImit = 9.4168021134859 = 0.0094 mg/l

The data are:

20000 ug/L (WQS values are expressed in ug/L's and need to be converted to mg/l to put into permit on Part I.) (20,000 ug/l default value per permit manual guidance pg MN-23)